

WHAT IS CLAIMED IS:

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1. An information processing apparatus capable of transmitting electronic mail, comprising:
 - designating means for designating a desired object
 - 5 to be attached to electronic mail;
 - acquisition means for acquiring access information relating to the object designated by said designating means; and
 - generating means for generating electronic mail
 - 10 information which includes the access information acquired by said acquisition means.
 2. The apparatus according to claim 1, wherein said generating means generates an attachment file which includes the access information acquired by said
 - 15 acquisition means and attaches the generated attachment file to electronic mail that is to be transmitted.
 3. The apparatus according to claim 1, wherein said generating means affixes the access information, which has been acquired by said acquisition means, to the main
 - 20 body of electronic mail that is to be transmitted.
 4. The apparatus according to claim 1, wherein the access information includes information indicating storage location of the object, which has been designated by said designating means, in a system.
 - 25 5. The apparatus according to claim 1, wherein said designating means has display means for presenting an

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at-a-glance display, in a thumbnail or list format, of documents that are present in a specific storage area, and for displaying an icon corresponding to an electronic mail application that is for generating and
5 transmitting electronic mail;

wherein a desired document among the documents in the at-a-glance display is dropped onto said icon, thereby designating the desired document.

6. The apparatus according to claim 1, wherein said
10 acquisition means has setting means for allowing a user to set access information via a prescribed user interface.

7. The apparatus according to claim 1, wherein said acquisition means sets an access key, which is for
15 enabling access to the object, as part of the access information.

8. The apparatus according to claim 1, further comprising setting means for setting, as part of the access information, permission to access all object
20 files in a storage area of an object that has been designated by said designating means.

9. The apparatus according to claim 1, further comprising setting means for setting, as part of the access information, permission to access other versions
25 of an object that has been designated by said designating means.

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10. An information processing apparatus capable of receiving electronic mail, comprising:

extraction means for extracting access information contained in electronic mail that has been received;

5 access means for accessing an object based upon the access information extracted by said extraction means; and

display means for presenting a display that corresponds to the object based upon content of the object accessed by said access means.

11. The apparatus according to claim 10, wherein said display means presents either a thumbnail display or a list display regarding objects accessed by said access means.

15 12. The apparatus according to claim 10, wherein the access information contains enabling information indicating whether it is permissible to access another object present at a storage location to which said object belongs;

20 said access means accesses another object present at said storage location in a case where the enabling information permits access to the other object; and

said display means presents an at-a-glance display relating to an object present at said storage location based upon results of accessing performed by said access means.

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13. The apparatus according to claim 12, further comprising:

selection means for selecting a desired object from the at-a-glance display; and

5 content display means for displaying content of an object that has been selected by said selection means.

14. The apparatus according to claim 10, wherein the access information contains enabling information indicating whether it is permissible to access another
10 version of said object;

said access means accesses an object which is another version of said object in a case where the enabling information permits access to the other version; and

15 said display means presents an at-a-glance display inclusive of the other version of said object based upon results of accessing performed by said access means.

15. The apparatus according to claim 14, further comprising:

20 selection means for selecting a desired object from the at-a-glance display; and

content display means for displaying content of an object that has been selected by said selection means.

16. The apparatus according to claim 10, wherein said
25 extraction means extracts the access information from a file that has been attached to electronic mail.

17. The apparatus according to claim 10, wherein said extraction means extracts the access information from the main body of electronic mail.

18. The apparatus according to claim 10, wherein the access information includes position information for specifying a storage location at which said object is present, and an access key for obtaining privilege to access an object at said storage location; and

using the access key, said access means accesses said object at the storage location specified by the position information

19. The apparatus according to claim 18, wherein the access key is information for logging in to said storage location.

20. An information processing system in which electronic mail can be sent and received between information processing apparatus, comprising:

generating means for generating electronic mail information which includes access information relating to an object to be attached to electronic mail;

communication means for sending and receiving the electronic mail information generated by said generating means; and

access means for accessing the object based upon the access information contained in the electronic mail information received via said communication means.

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21. The system according to claim 20, wherein said generating means includes:

designating means for designating a desired object to be attached to electronic mail;

5 acquisition means for acquiring access information relating to the object designated by said designating means; and

mail information generating means for generating electronic mail information in which the access
10 information acquired by said acquisition means constitutes part of the electronic mail.

22. The system according to claim 21, wherein said mail information generating means generates an attachment file which includes the access information acquired by
15 said acquisition means and attaches the generated attachment file to electronic mail that is to be transmitted.

23. The system according to claim 21, wherein said mail information generating means affixes the access
20 information, which has been acquired by said acquisition means, to the main body of electronic mail that is to be transmitted.

24. The system according to claim 21, wherein the access information includes information indicating
25 storage location of the object, which has been designated by said designating means, in the system.

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25. The system according to claim 21, wherein said designating means has display means for presenting an at-a-glance display, in a thumbnail or list format, of documents that are present in a specific storage area,
5 and for displaying an icon corresponding to an electronic mail application that is for generating and transmitting electronic mail;

wherein a desired document among the documents in the at-a-glance display is dropped onto said icon,
10 thereby designating the desired document.

26. The system according to claim 21, wherein said acquisition means has setting means for allowing a user to set access information via a prescribed user interface.

15 27. The system according to claim 21, wherein said acquisition means sets an access key, which is for enabling access to the object, as part of the access information.

28. The system according to claim 21, further
20 comprising setting means for setting, as part of the access information, permission to access all object files in a storage area of an object that has been designated by said designating means.

29. The system according to claim 21, further
25 comprising setting means for setting, as part of the access information, permission to access other versions

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of an object that has been designated by said designating means.

30. The system according to claim 20, wherein said communication means transmits the electronic mail
5 information, which has been generated by said generating means, to an information processing apparatus that has been designated.

31. The system according to claim 20, wherein said access means includes:

10 extraction means for extracting the access information contained in electronic mail that has been received;

object access means for accessing an object based upon the access information extracted by said extraction
15 means; and

display means for presenting a display that corresponds to the object based upon content of the object accessed by said access means.

32. The system according to claim 31, wherein said
20 display means presents either a thumbnail display or a list display regarding objects accessed by said access means.

33. The system according to claim 31, wherein the access information contains enabling information
25 indicating whether it is permissible to access another object present at a storage location to which said

object belongs;

5 said display means presents an at-a-glance display
relating to an object present at said storage location
based upon results of accessing performed by said access
means.

selection means for selecting a desired object from the at-a-glance display; and

15 35. The system according to claim 31, wherein the
access information contains enabling information
indicating whether it is permissible to access another
version of said object;

said display means presents an at-a-glance display inclusive of the other version of said object based upon results of accessing performed by said access means.

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comprising:

selection means for selecting a desired object from the at-a-glance display; and

content display means for displaying content of an object that has been selected by said selection means.

37. The system according to claim 31, wherein said extraction means extracts the access information from a file that has been attached to electronic mail.

38. The system according to claim 31, wherein said extraction means extracts the access information from the main body of electronic mail.

39. The system according to claim 31, wherein the access information includes position information for specifying a storage location at which said object is present, and an access key for obtaining privilege to access an object at said storage location; and

using the access key, said object access means accesses said object at the storage location specified by the position information

40. The system according to claim 39, wherein the access key is information for logging in to said storage location.

41. An information processing method in an apparatus capable of transmitting electronic mail, said method comprising:

a designating step of designating a desired object

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to be attached to electronic mail;

an acquisition step of acquiring access information relating to the object designated at said designating step; and

- 5 a generating step of generating electronic mail information which includes the access information acquired at said acquisition step.

42. The method according to claim 41, wherein said
10 generating step generates an attachment file which includes the access information acquired at said acquisition step and attaches the generated attachment file to electronic mail that is to be transmitted.

43. The method according to claim 41, wherein said
15 generating step affixes the access information, which has been acquired at said acquisition step, to the main body of electronic mail that is to be transmitted.

44. The method according to claim 41, wherein the
20 access information includes information indicating storage location of the object, which has been designated at said designating step, in a system.

45. The method according to claim 41, wherein said
designating step includes a display step of presenting
an at-a-glance display, in a thumbnail or list format,
of documents that are present in a specific storage
25 area, and of displaying an icon corresponding to an electronic mail application that is for generating and

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transmitting electronic mail;

wherein a desired document among the documents in the at-a-glance display is dropped onto said icon, thereby designating the desired document.

5 46. The method according to claim 41, wherein said acquisition step includes a setting step of allowing a user to set access information via a prescribed user interface.

47. The method according to claim 41, wherein said
10 acquisition step sets an access key, which is for enabling access to the object, as part of the access information.

48. The method according to claim 41, further comprising a setting step of setting, as part of the
15 access information, permission to access all object files in a storage area of an object that has been designated at said designating step.

49. The method according to claim 41, further comprising a setting step of setting, as part of the
20 access information, permission to access other versions of an object that has been designated at said designating step.

50. An information processing method in an apparatus capable of receiving electronic mail, said method
25 comprising:

an extraction step of extracting access information

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contained in electronic mail that has been received;

an access step of accessing an object based upon the access information extracted at said extraction step; and

5 a display step of presenting a display that corresponds to the object based upon content of the object accessed at said access step.

51. The method according to claim 50, wherein said display step presents either a thumbnail display or a
10 list display regarding objects accessed at said access step.

52. The method according to claim 50, wherein the access information contains enabling information indicating whether it is permissible to access another
15 object present at a storage location to which said object belongs;

said access step accesses another object present at said storage location in a case where the enabling information permits access to the other object; and

20 said display step presents an at-a-glance display relating to an object present at said storage location based upon results of accessing performed at said access step.

53. The method according to claim 52, further
25 comprising:

a selection step of selecting a desired object from

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the at-a-glance display; and

a content display step of displaying content of an object that has been selected at said selection step.

54. The method according to claim 50, wherein the
5 access information contains enabling information indicating whether it is permissible to access another version of said object;

said access step accesses an object which is another version of said object in a case where the
10 enabling information permits access to the other version; and

said display step presents an at-a-glance display inclusive of the other version of said object based upon results of accessing performed at said access step.

15 55. The method according to claim 54, further comprising:

a selection step of selecting a desired object from the at-a-glance display; and

a content display step of displaying content of an
20 object that has been selected at said selection step.

56. The method according to claim 50, wherein said extraction step extracts the access information from a file that has been attached to electronic mail.

57. The method according to claim 50, wherein said
25 extraction step extracts the access information from the main body of electronic mail.

Figure 1 displays 12 histograms, labeled x_0 through x_{11} , showing the distribution of the number of non-zero elements in the vector x_k . The x-axis represents the number of non-zero elements (0 to 10), and the y-axis represents the count (0 to 10). The distributions are roughly bell-shaped and centered around 5, with the peak count increasing from 10 at x_0 to 12 at x_{11} .

using the access key, said access step accesses
said object at the storage location specified by the
position information

60. A method of controlling an information processing system in which electronic mail can be sent and received between information processing apparatus, said method comprising:

20 a communication step of sending and receiving the
electronic mail information generated at said generating
step; and

25 61. The method according to claim 60, wherein said
generating step includes:

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a designating step of designating a desired object to be attached to electronic mail;

an acquisition step of acquiring access information relating to the object designated at said designating
5 step; and

mail information generating step of generating electronic mail information in which the access information acquired at said acquisition step constitutes part of the electronic mail.

10 62. The method according to claim 61, wherein said mail information generating step generates an attachment file which includes the access information acquired by said acquisition step and attaches the generated attachment file to electronic mail that is to be transmitted.

15 63. The method according to claim 61, wherein said mail information generating step affixes the access information, which has been acquired at said acquisition step, to the main body of electronic mail that is to be transmitted.

20 64. The method according to claim 61, wherein the access information includes information indicating storage location of the object, which has been designated at said designating step, in the system.

25 65. The method according to claim 61, wherein said designating step includes a display step of presenting an at-a-glance display, in a thumbnail or list format,

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of documents that are present in a specific storage area, and of displaying an icon corresponding to an electronic mail application that is for generating and transmitting electronic mail;

5 wherein a desired document among the documents in the at-a-glance display is dropped onto said icon, thereby designating the desired document.

66. The method according to claim 61, wherein said acquisition step includes a setting step of allowing a
10 user to set access information via a prescribed user interface.

67. The method according to claim 61, wherein said acquisition step sets an access key, which is for enabling access to the object, as part of the access
15 information.

68. The method according to claim 61, further comprising a setting step of setting, as part of the access information, permission to access all object files in a storage area of an object that has been
20 designated at said designating step.

69. The method according to claim 61, further comprising a setting step of setting, as part of the access information, permission to access other versions of an object that has been designated at said
25 designating step.

70. The method according to claim 60, wherein said

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communication step transmits the electronic mail information, which has been generated at said generating step, to an information processing apparatus that has been designated.

- 5 71. The method according to claim 60, wherein said access step includes:

an extraction step of extracting the access information contained in electronic mail that has been received;

- 10 an object access step of accessing an object based upon the access information extracted at said extraction step; and

- a display step of presenting a display that corresponds to the object based upon content of the object accessed at said access step.

72. The method according to claim 71, wherein said display step presents either a thumbnail display or a list display regarding objects accessed at said access step.

- 20 73. The method according to claim 71, wherein the access information contains enabling information indicating whether it is permissible to access another object present at a storage location to which said object belongs;

- 25 said access step accesses another object present at said storage location in a case where the enabling

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information permits access to the other object; and
said display step presents an at-a-glance display
relating to an object present at said storage location
based upon results of accessing performed at said access
5 step.

74. The method according to claim 73, further
comprising:

a selection step of selecting a desired object from
the at-a-glance display; and

10 a content display step of displaying content of an
object that has been selected at said selection step.

75. The method according to claim 71, wherein the
access information contains enabling information
indicating whether it is permissible to access another
15 version of said object;

said access step accesses an object which is
another version of said object in a case where the
enabling information permits access to the other
version; and

20 said display step presents an at-a-glance display
inclusive of the other version of said object based upon
results of accessing performed at said access step.

76. The method according to claim 75, further
comprising:

25 a selection step of selecting a desired object from
the at-a-glance display; and

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access information.

91. The method according to claim 90, further comprising a step of giving password to the unregistered user when it is set in the setting step that the
5 unregistered user may be provided with the access information.

92. The method according claim 90, further comprising a step of prohibiting the unregistered user from accessing the object when it is set by said setting means that the
10 unregistered user is not provided with the access information.

93. A computer-readable memory storing a control program for causing a computer to generate electronic mail, said control program having:

15 code of a designating step of designating a desired object to be attached to electronic mail;

code of an acquisition step of acquiring access information relating to the object designated at said designating step; and

20 code of a generating step of generating electronic mail information which includes the access information acquired at said acquisition step.

94. A computer-readable memory storing a control program for causing a computer to process received mail,

